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RAG/EA 7274/cea

SUBJECT: Reclassification of Impregnite, Shoe, M1

TO: The Chairman, Chemical Warfare Technical Committee

Item No. 15-2 2/
C.W.T.C. Minutes

1. References:

- a. 2nd Ind, AG 441.2, AGO, 13 November 1940, on letter, CWS 422/197, this office, October 25, 1940, subject: Standardization of Impregnite, Shoe, M1, to the AG.
- b. 2nd Ind, SPRMD 470.72, Hq, ASF, 6 April 1944, on letter, O-QMG, 2 March 1944, subject: Study of Dubbing and Shoe Impregnite, to CG, ASF.
- c. 1st Ind, SPROG, Hq, ASF, 6 September 1945, on letter, SPQRD 438, O-QMG, 7 August 1945, subject: Dubbing Protective, to CG, ASF.

2. Discussion:

a. Reference a approved the standardization of Impregnite, Shoe, M1. This material is a paste prepared from Ester gum, Neats-foot oil, paraffin wax and solvent. It is issued to the field in cylindrical cans (8 oz. capacity) which contain the proper amount of impregnite for a single pair of shoes. The application of the subject material on the inside and outside of a pair of shoes will provide several hours protection against liquid vesicants.

b. In the early part of 1944, work was informally conducted by the Quartermaster Corps in an effort to provide a single substance which would serve both as a shoe dubbing and as a shoe impregnite. Based on a report of the results of this preliminary work, Headquarters, Army Service Forces directed (reference b) the Quartermaster General to set up a cooperative project with the Chemical Warfare Service to develop a single substance which would satisfactorily serve the purposes of both regular dubbing and shoe impregnite.

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UNCLASSIFIED

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2. Discussion continued:

c. As a result of the work conducted under the above mentioned cooperative project, a combination shoe dubbing and shoe impregnite was developed. This material, which has been designated as Dubbing, Protective, acts as a lubricant and leather preservative when applied as a dubbing using a light application. When applied heavily as a gas retardant, it gives good vesicant resistance, lubrication and preservation to the leather. The following formulations present a comparison of the compositions of M1 shoe impregnite and protective dubbing:

	<u>Impregnite, Shoe, M1</u>	<u>Dubbing, Protective</u>
Ester gum	30%	30%
Neats-foot oil	15%	--
Animal oil	--	37%
Paraffin wax	15%	10%
Microcrystalline wax	15%	9%
Aluminum stearate	--	1%
Stoddard solvent	25%	13%
total	100%	100%

From the above formulations it is seen that the protective dubbing contains more oil than the shoe impregnite. The amount of oil has been increased so that the protective dubbing will serve as a satisfactory leather lubricant and also so that leather treated with the dubbing will remain flexible at low temperatures. Ester gum is the constituent that provides vesicant resistance, and it will be noted that the new dubbing has the same amount by weight of this material as does shoe impregnite.

d. Tests conducted on the above described Dubbing, Protective have shown that this material can be used satisfactorily as a shoe dubbing. Also, when applied heavily as a gas retardant it gives adequate vesicant resistance. The vesicant protection provided by the dubbing is not as great as that afforded by shoe impregnite. However, in consideration of the fact that combat boots treated with protective dubbing resisted liquid mustard penetration for 14 hours, it has been concluded that the dubbing is satisfactory for use as a vesicant retardant.

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2. Discussion continued:

e. In view of the test results referred to in the preceding paragraph, the Quartermaster Corps Technical Committee recommended that Dubbing, Protective be adopted as a Standard article. As shown in reference c, this recommendation has now been approved by Headquarters, Army Service Forces. In addition to this approval action, reference c directed that the Chief, Chemical Warfare Service process Impregnite, Shoe, M1 for reclassification as a Limited standard article and take appropriate action to transfer existing stocks to the Quartermaster Corps.

f. In consideration of the above mentioned directive, action has been initiated to have existing stocks of shoe impregnite transferred to the Quartermaster Corps. In addition, it will be recommended in this report that the subject impregnite be reclassified as a Limited standard article and be removed from the records as an adopted type item of CWS equipment.

3. Recommendations:

a. It is recommended that:

- (1) The responsibility for storage, issue and maintenance of Impregnite, Shoe, M1 be transferred from the Chemical Warfare Service to the Quartermaster Corps.
- (2) The item, Impregnite, Shoe, M1, be reclassified as a

Required type

Adopted type

Limited standard article

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3a. Recommendations continued:

- (3) The Quartermaster General be requested to take necessary action to have Impregnite, Shoe, M1 classified as a Limited standard Quartermaster item.
- (4) After the action requested in the preceding recommendation has been taken, the removal of Impregnite, Shoe, M1 from the CWS Book of Standards be authorized.

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DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
EDGEWOOD CHEMICAL BIOLOGICAL CENTER
5183 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MD 21010-5424

RDCB-DPC-RS

21 APR 2011

MEMORANDUM FOR CBRN Information Resource Center, 1 Rock Island Arsenal,
Building 62, ATTN: Twyla Lingard, Rock Island, Illinois 61299-7390.

SUBJECT: Change in Limitation (Public Release of Information)

1. The purpose of this memorandum is to recommend the Release of Information to the General Public regarding the Composition of M1 Shoe Impregnate, dated 25 Dec 1946. This information comes from the WWII era and was downgraded from Restricted to Unclassified previously.
2. This document has been reviewed by Subject Matter Experts from the Edgewood Chemical Biological Center (ECBC) on Aberdeen Proving Ground, Maryland and deemed releasable to the General Public. Request that this document be properly identified and appropriately marked.
3. As the Security Manager for the documents in question, I concur with the recommendations made by the ECBC Review Team.
4. Point of contact for this action is the undersigned at 410-436-7232.

Encl

JUNE K. SELLERS
ECBC Security and Surety Manager